

Chapter 2 Planning Process

Disaster Mitigation Act of 2000

§201.4(b): An effective planning process is essential in developing and maintaining a good plan. The mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.

§201.4(c)(1): Description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated

2.1 Introduction

It must be noted that existing programs, statutes and policies of state agencies were reviewed in the early stages of plan development and remained in the background throughout the planning process. Mitigation planning has been traditionally directed by requirements of the Stafford Act for inclusion in state Emergency Management Plans. The 2000 revision of the Stafford Act created comprehensive requirements for “all-hazard” planning. Final guidance was delayed following the September 11, 2001 tragedy and the creation of the Department of Homeland Security. Therefore, an approval deadline for Standard State All-hazard Mitigation Plans was set for November 1, 2004. This short deadline meant that the state plan had to focus on mitigation of state agency facilities from natural hazards. This approach directed the planning process to specific facilities and mitigation of those facilities.

Therefore, the 2004 approved final *Commonwealth Emergency Operations Plan, Support Annex 3: Standard Hazard Mitigation Plan* did not attempt to fully integrate ongoing state and local programs into the mitigation goals, objectives, strategies and projects listed herein. The Mitigation Strategy presented in Chapter 4 was developed to address state agency structural, educational, policy and information development deficiencies identified through the hazard identification and risk analysis process described in Chapter 3.

Since many of the Commonwealth’s state and local programs, policies and statutes address natural hazards, they are listed in this plan to provide background on institutional, comprehensive approaches to natural hazards mitigation that have been present in Commonwealth programs prior to the 2000 Stafford Act revision. These programs are relevant and contribute significantly to reduced impacts from natural hazards.

The next plan revision of the *Commonwealth Emergency Operations Plan, Support Annex 3: Standard Hazard Mitigation Plan* will include a Hazard Identification and Risk Analysis (HIRA) and a vulnerability assessment that reflect local HIRAs. A database (see Appendix 11) of *approximately* 1,976 goals, objectives and strategies from each of the local plans has been created so that the next state plan can represent more fully regional mitigation priorities. Appendix 11 provides a two-page sample of one local strategy from each of twenty-six Virginia jurisdictions with approved plans. What was found following a review of the complete spreadsheet was that 630 Structural Mitigation projects, 497 Policy, Planning & Funding, 334 Information & Data, 475 Education & Outreach, and 40



other “high”, “medium” and “low” priority mitigation activities were listed by Virginia communities. This spreadsheet is a valuable tool that the Department of Emergency Management is using to assist local communities to achieve their mitigation goals. In development of the next plan update, which began during 2007 with HIRA revision and reformatting of the Mitigation Steering Committee, a full analysis of federal, state and local program statutes, plans and policies will also be conducted to help determine relevant programs to the state hazard mitigation planning process. This will be done in a context that will fully integrate, not duplicate, those programs that support state hazard mitigation priorities. The next plan update will also incorporate human-caused hazards data that is reflective of the risks and priorities of local communities. It will also continue to address the highest priorities as listed in 27 local and regional hazard mitigation plans and seven Disaster Resistant University plans.

2.2 Overview of the Planning Process

The planning process for the Commonwealth of Virginia Hazard Mitigation Plan was initiated by the first meeting of the State Steering Committee on July 28, 2003 (refer to Appendix E for documentation on the Committee Meetings). At that meeting, the federal rule requirements were explained to state and federal agency stakeholders as well as representatives of private non-profit organizations that were in attendance. The original planning process involved three sub-committees that would essentially develop the plan. These committees were charged with the three major planning tasks that comprise development of a hazard mitigation plan:

- A. Identify Hazards and Risks
- B. Perform a Vulnerability Assessment
- C. Develop Mitigation Strategies to Address Reduction of Potential Damages

Seven weeks following the organization of the stakeholders into these three sub-committees, the Commonwealth was struck by the largest natural disaster since settlement – Hurricane Isabel. This major storm entered the Commonwealth on September 18, 2003. Damages resulted in inclusion of 100 jurisdictions in the Presidential Disaster declaration DR-1491-VA. More than 93,000 Virginia households, individuals and businesses registered for disaster assistance. Damages were incurred from hurricane tidal surge, high winds, flooding and tornadic activity. To date, more than \$2.1 billion in damages resulted from the storm.

Obviously, Hurricane Isabel derailed the planned hazard mitigation planning process as VDEM and other state agencies scrambled to deliver response, recovery and mitigation programs to the citizens of the Commonwealth. Key VDEM, DCR, and other state staff were deployed to the FEMA-Commonwealth Disaster Field Office, in operation from September 22, 2003 through January 30, 2004. Since up to 7% of Hurricane Isabel HMGP funds could be directed to support development of state and local §322 hazard mitigation plans, VDEM contracted the hazard and risk identification, vulnerability assessment and probable loss prediction functions to the Virginia Tech Center for Geospatial Information Technology (CGIT).

As the Center developed databases to support GIS mapping throughout the fall of 2003 and the winter of 2004, the planning process was amended to guide the Steering Committee through a participative planning process. This process was conducted during the three remaining Steering Committee meetings with individual participation through web-based project data entry, strategy and project ranking and plan draft review. Continued development of an inventory of state facilities, analysis of the recorded history of damage impacts due to natural hazards and synthesis of GIS layers for wildfire, special flood hazard areas, earthquake zones, karst topography and tornado occurrence



led to prediction of probability for incurred damages to state facilities from identified natural hazards. The planning process continued to evolve to ensure comprehensive agency responses, as data was being developed and analyzed. The Steering Committee Meetings may be summarized as follows:

First Meeting: July 28, 2003	Introduction of Section 322 requirements and the state planning process Establishment of three Sub-committees: <ul style="list-style-type: none">• Hazard and Risk Identification• Vulnerability Assessment• Mitigation
Second Meeting: February 27, 2004	Presentation of Hazard Identification and Risk Analysis (HIRA) Re-delineation of Sub-committees to determine state goals and objectives: <ul style="list-style-type: none">• Structural Mitigation Projects Sub-committee• Policy, Planning & Funding Sub-committee• Data Development Sub-committee• Education Sub-committee
Third Meeting: May 26, 2004	Final Presentation of HIRA and Loss Analysis Refinement of Sub-committee Goals and Objectives Development of Project Prioritization Criteria Instruction on Project Data Entry via web site
Fourth Meeting: July 19, 2004	Introduction to the Plan draft and instructions for review Project Prioritization Procedures via web site Schedule for final plan review and submission Organization of Permanent Advisory Sub-Committees <ul style="list-style-type: none">• Mitigation Project Advisors• Planning, Policy & Funding• Mitigation Database Expansion and Refinement• Assessment of Human-caused Hazards
Fifth Meeting: June 30, 2005	Review of the past state planning efforts Meeting of the 4 Sub-Committees <ul style="list-style-type: none">• Human-Caused• Structural Mitigation• Planning, Policy & Funding• Information and Data Development of 2005 Sub-Committee plans

2.3 Stakeholder Involvement

The involvement of stakeholders in plan development was considered a vital element to success in development of a FEMA-approvable plan. Since the plan was originally primarily targeted towards providing a mitigation strategy for Commonwealth of Virginia-owned facilities, stakeholders were sought from state agencies, colleges and universities. Key federal agency partners and private non-profit organizations joined state agency stakeholders. This holistic participation was necessary for the plan to evolve into a true ongoing mitigation movement across the Commonwealth as opposed to the traditional planning “shelf” document. Stakeholders evolved into Steering Committee members who provided critical input to the planning process, including sharing of inventories of



state facilities, database layers identifying wildfire risk to structures located in woodlands, Special Flood Hazard Areas, earthquake fault zones, karst limestone topography (caves and sinkholes), winter storms and tornados. The participants crafted a vision and four hazard mitigation goals, which provided the framework of the Mitigation Plan (Chapter 4). Supporting objectives were outlined and refined to support each of the four mitigation goals. Hundreds of projects and strategies to support objectives were entered into a web-based database. Each project was then ranked based on established criteria to enable prioritization of strategies and projects into categories of “critical,” “high,” “medium” and “low.” Finally, Steering Committee members continued the work on an ad hoc basis through the establishment of standing sub-committees during the final Steering Committee. These sub-committees were created to advise VDEM in critical areas and functions of Mitigation Planning that not only facilitated implementation of the 2004 Commonwealth Hazard Mitigation Plan but also enabled a comprehensive revision of the plan within the three year planning cycle outlined within the federal rule.

2.4 Agency Contacts

Federal regulations require that planning process participants represent a cross-section of relevant state and federal agencies as well as organizations. A diverse group of stakeholders were invited from the beginning of the planning process during the summer of 2003 to attend the first Steering Committee meeting. These agency representatives brought expertise and concerns for natural resources, weather forecasting, data and GIS development, hydrology, emergency services, transportation, health, public safety and higher education. Private non-profit interests, especially the American Red Cross and Volunteer Agencies (VOLAG) were invited as well. Following the first Steering Committee meeting, VDEM staff made individual contacts to specific agencies and organizations to solicit data sharing and to invite participation. Each state agency director and college or university president within the Commonwealth of Virginia was invited to the second and third Steering Committee meetings, which significantly diversified agency participation. Along with federal agency partners and non-profit organization cooperators, the broad geographic and technical expertise represented by these participants allowed the Commonwealth to develop a representative, collaborative mitigation plan.

More than 160 representatives participated through attendance at one, two, three or all of the Steering Committee meetings, provided integral data, participated in sub-committees, entered projects or strategies into the database or provided technical review to the plan draft. Participation was both active and passive, but even telephone discussions and email messages added to the comprehensiveness of the HIRA and development of the Mitigation Goals, Objectives and Strategies & Projects.

2.5 Steering Committee Meetings

Virginia mitigation stakeholders participated in a series of five meetings in Richmond, the state capital, during the year-long planning process. These meetings provided a forum for discussion on hazard identification and assessment methods for a variety of hazards. In addition, as the process evolved, stakeholders, Department of Emergency Management staff and consulting universities developed a participatory planning process. Full description of each Steering Committee meetings follows:

2.5.1 July 28, 2003 Steering Committee Meeting

The first Steering Committee meeting was conducted during July, 2003. The requirements of section 322 of the 2000 Stafford Act were presented to state and federal



agencies in attendance along with several non-profit organizations that participated in emergency response and recovery. Participants were divided into three sub-committees that were intended to develop the plan. The sub-committees were:

- Hazard and Risk Identification
- Vulnerability Assessment
- Mitigation Strategies

It was intended that the Hazard and Risk Identification sub-committee, with VDEM staff support, would perform hazard and risk analysis during fall of 2003. Data would be fed to the Vulnerability Assessment sub-committee, who would assign state agency facilities a vulnerability ranking based on facility's exposure to natural hazards. Finally, the Mitigation Strategies sub-committee would develop mitigation strategies and projects responsive to vulnerabilities identified by the other two sub-committees.

In retrospect, this planning process was inherently flawed since a group of agency representatives did not have the central data assimilation capability to perform hazard and risk identification as well as a vulnerability synthesis. VDEM at the time did not have staff expertise or capability to adequately support the sub-committees in these tasks.

The planning programmatic deficiencies were becoming evident by September, 2003. Hurricane Isabel devastated the Commonwealth on September 18, 2004, resulting in a federal disaster declaration that encompassed 70 counties and 30 cities. As VDEM Mitigation Program resources were directed to address Isabel recovery, it became evident that development of an "in-house" plan supported by sub-committees of agency and organization partners was not practical. The Virginia Tech Center for Geospatial Information Technology was contracted to develop the HIRA during late fall, 2003.

2.5.2 February 26, 2004 Steering Committee Meeting

Hazard identification and risk assessment was the focus of the second meeting, held within one month of closure of the Hurricane Isabel Disaster Field Office. A preliminary Hazard and Risk Analysis, with an agency-specific vulnerability assessment was provided to those participating. Discussion was lively as participants began to understand the scope of the Commonwealth's vulnerability to common hazards such as floods and winter storms. In addition, it became clear that the nearly 12,000 state structures and facilities dispersed throughout the Commonwealth are exposed to tornados, earthquakes, land subsidence, severe storms and hurricanes.

It was evident that the previously designated Mitigation Strategies Sub-committee could not fully address the results of the HIRA and vulnerability analysis. Therefore, the sub-committee structure was reconfigured to the following sub-committees:

- Structural Mitigation Projects Sub-committee
- Policy, Planning & Funding Sub-committee
- Data Development Sub-committee
- Education Sub-committee

Sub-committees were formed during this meeting. Each group began to develop a mitigation goal and supporting objectives. These were refined during the next six weeks. In addition, work to edit and complete HIRA and vulnerability assessment continued.





February 26, 2004 Steering Committee Meeting, Richmond VA

2.5.3 May 26, 2004 Steering Committee Meeting

The University of Virginia Institute for Environmental Negotiation joined the plan development effort at the third Steering Committee meeting. The final results of the hazard identification and risk analysis were presented, along with the vulnerability assessment for all state agency facilities. With assistance from the Institute for Environmental Negotiation, the sub-committees met and refined their goals and objectives. The four mitigation goals, which address planning & policy; information and data needs; mitigation education; and structural mitigation projects were solidified at this meeting. Discussion of project and strategy needs occurred during the sub-committee meetings. Prior to this meeting, state agencies had not developed specific mitigation projects or strategies. To ease this process and to encourage projects and strategies that would support a specific mitigation goal and objective, an on-line system had been developed for mitigation and project strategy data entry. The on-line system was introduced at the meeting and was operational immediately following the meeting. It allowed state agencies to enter mitigation project/strategy summaries that specifically addressed mitigation objectives.

2.5.4 July 19, 2004 Steering Committee Meeting

Project data entry continued from May 26 through July 10, 2004. Nearly 100 projects were developed using the Mitigation web site during this period. The draft *Standard Virginia Hazard Mitigation Plan – Emergency Operations Plan, Support Annex 3* was written and distributed to all agencies, organizations and individuals that participated in the hazard mitigation planning process since its inception during July, 2003.

The fourth and final Steering Committee Meeting focused on plan review and implementation. A ranking system was introduced that would allow Steering Committee members to use the Mitigation website to rank projects using priorities developed by each sub-committee during the May meeting.

In addition, the Steering Committee was challenged to begin to explore refinements necessary for plan revision in 2007 to incorporate results of 27 local and regional



mitigation plans. The 2007 plan must also address human-caused hazards. To this end, while the four goal groups reflected in Chapter 4 of this plan mirror those developed by the sub-committees to date, the sub-committees were re-configured slightly to better accommodate plan implementation and refinement. The new Virginia Mitigation Sub-Committees established on July 19, 2004 are:

- Mitigation Project Advisors
- Planning, Policy & Funding
- Mitigation Database Expansion and Refinement
- Assessment of Human-caused Hazards

These new sub-committees met during the July 19 meeting, assisted by Institute of Environmental Negotiation facilitators. They determined leadership, method of communication and a schedule for meeting during the next 18 months.

2.5.5 June 30, 2005 Steering Committee Meeting

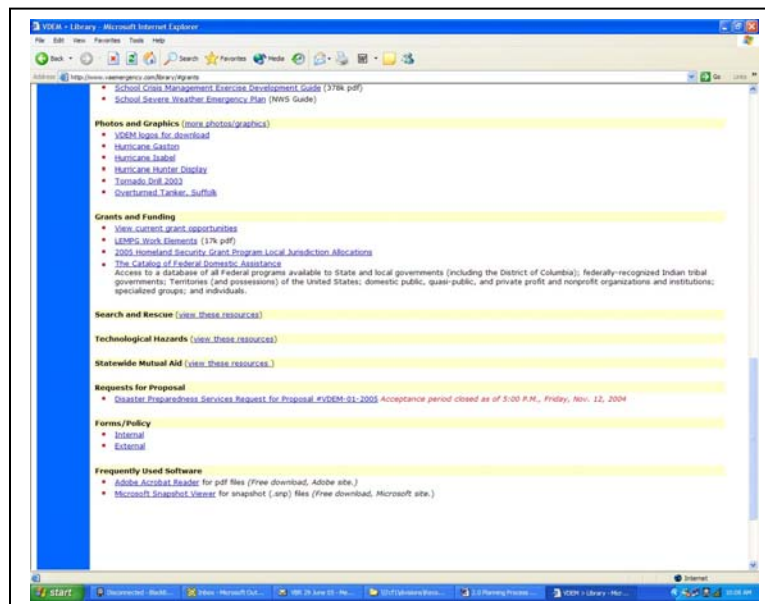
The Steering Committee reconvened in June 2005. The meeting commenced with introductions followed by a brief overview of past planning efforts and the goals and objectives of the State Hazard Mitigation Plan. This fifth meeting focused on the implementation of those mitigation projects that were listed by Virginia State agencies and other stakeholders in the 2004 approved Standard Plan (i.e. those mitigation actions that were listed in the CGIT-hosted Mitigation database). The four Sub-Committees (Human-Caused, Structural Mitigation, Planning, Policy & Funding, and Information & Data) then separated into their groups and continued discussions on plan implementation while developing actions for the upcoming year.

2.6 Additional Workgroup Meetings

Following the first Steering Committee meeting, the Mitigation Sub-committee met to develop a survey method to gather data regarding existing Commonwealth and other grant programs that might be available to fund mitigation projects. The group developed a survey format that was digitally conveyed to sub-committee members in late August, 2003.

The data gathered was used to develop a “test” web-based grants database that became operational during fall, 2004. This database will evolve into a useful tool for those seeking funding beyond traditional FEMA grant programs to support implementation of the strategies and projects included in the Mitigation Plan. This database may be found on the VDEM website, www.vaemergency.gov within the Library Section:





Screen captures, VDEM Grants database

2.7 Agency Contacts and Interviews

Throughout the planning process additional resources were identified for information to support development of the hazard identification and risk assessment. Meetings were conducted with agency officials contributing information and data to the process. Telephone interviews and email correspondence were also used to supplement meetings.

In addition, agency profiles were developed through a web-based survey. These profiles were completed by agency stakeholders and characterized their agency's role in mitigation planning. The complete agency profiles can be located in Appendix D.

2.8 Planning Efforts by State and Local Agencies

Local jurisdictions in Virginia address some hazards in the planning and development process, primarily through the building code, which includes provisions requiring new buildings and structures to be designed to resist certain flood, wind, snow, and seismic loads. The Uniform Statewide Building Code (which in Virginia includes the International Building Code – 2003) has very specific provisions addressing fire hazards and safety of occupants.

In preparation of a comprehensive plan, the local planning commission is required to survey and study such matters as use and preservation of land, characteristics and conditions of existing development, natural resources, surface water, geology, environmental and economic factors, existing public facilities, drainage, flood control and flood damage prevention measures, among others. (§15.2.2224, *Code of Virginia*).

Comprehensive plans and ordinances for zoning and subdivisions must explicitly address flood hazards and geologic information (§15.2-223 et seq. *Code of Virginia*). Cities and counties in coastal zones also must address coastal management issues such as erosion. Hazards not specifically addressed include: non-building aspects of severe winter storms, landslides, wildfire at the urban/forest interface, and dam-break hazards.

It must be noted that existing programs, statutes and policies of state agencies were reviewed in the early stages of plan development and remained in the background throughout the planning process. However, the final *Commonwealth Emergency Operations Plan, Support Annex 3: Standard Hazard Mitigation Plan* does not attempt to fully integrate these ongoing state and local programs into the mitigation goals, objectives, strategies and projects. The Mitigation Strategy presented in Chapter 4 was developed specifically to address state agency structural, educational, policy and information development deficiencies identified through hazard identification and risk analysis process described in Chapter 3.

Since many of Commonwealth's state and local programs, policies and statutes address natural hazards, they are listed in this plan to provide background on institutional, comprehensive approaches to natural hazards mitigation that have been present in Commonwealth programs prior to the 2000 Stafford Act revision. These programs are relevant and contribute significantly to reduced impacts from natural hazards.

2.8.1 Local Planning and Development

With respect to addressing natural hazards, local jurisdictions control land use through plans, ordinances and codes. These programs are enabled through state law and regulation and like the many state programs described in this chapter, contribute significantly to mitigation of natural hazards. These programs were not directly considered during development of the final *Emergency Operations Plan, Support Annex 3: Standard Virginia Hazard Mitigation Plan* because the plan primarily addresses state facilities determined to be at risk following analysis of vulnerability of state facilities to natural hazards. However, these efforts are extremely relevant as state agencies generally manage state facilities in a manner that is consistent and complementary of local comprehensive planning and zoning. State-sponsored construction adheres to the Uniform Statewide Building Code that incorporates the International Building Code, 2003. Use of the Uniform Statewide Building Code is required for all new construction as well as significant repairs or additions within Commonwealth cities, counties and towns. Many of the local strategies that were identified by Virginia jurisdictions (see Appendix 11) reflect the building code and address natural hazards. These local initiatives significantly contribute to mitigating hazards.

- **Comprehensive Plans** are prepared by local planning commissions and address the physical development of land within a jurisdiction's boundaries. The comprehensive plan "shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants" (§15.2-2223, *Code of Virginia*). Most plans evaluate and provide guidance for both land uses and the environment. Residential, business, industrial, agricultural, parks and open space, public land, floodplains, transportation corridors, community facilities, historical districts and areas targeted for redevelopment are all addressed within the plan. Also included are demographic trends such as population densities and information on age and quality of housing stock.



- **Zoning Ordinances** are for general purpose of promoting health, safety or general welfare of the public. Some consideration to the following is given within each zoning district, where applicable:
 - adequate light, air, convenience of access, and safety from fire, flood, crime and other dangers;
 - provision of adequate police and fire protection, disaster evacuation, water, sewerage, flood protection, and other public requirements; and
 - protection against loss of life, health, or property from fire, flood, panic or other dangers (§15.2-2283, *Code of Virginia*).
- **Land Subdivision and Development Ordinances** are prescribed by statute and provide restrictions for plats, utilities, and streets, and address flood control, drainage, and other regulations that control the density and use of the land. (§15.2-2241, *Code of Virginia*).
- **2005 Uniform Statewide Building Code** includes provisions related to wind hazards, snow loads, seismic risk flood hazards, and structural fire hazards. The Uniform Statewide Building Code, in partnership with the International Code Commission, incorporated the 2003 International Building Code into its November, 2005 adoption which supersedes previous building codes and regulations (§36-98, *Code of Virginia*). The code has been cross-walked with the National Flood Insurance Program regulations and is consistent with local floodplain ordinances. The State Building Code Official provides technical assistance and interpretation of regulations to local governments. Periodic revision of the statewide building code usually includes adoption of the current International Building Code along with other state-specific regulations. This most recent adoption, provided wind strengthening measures that will reduce damages from severe storms and hurricanes.
- **Floodplain Management**, The provisions for development within the regulated floodplain has typically been addressed by stand-alone ordinances adopted for voluntary participation in the National Flood Insurance Program. Revised floodplain ordinance provisions were recently incorporated into comprehensive zoning ordinances when localities adopt, revise or re-codify zoning ordinances. Flooding has always been problematic in the Commonwealth with many severe floods documented soon after European settlement. To complement the National Flood Insurance Program, created in 1968, Virginia's General Assembly enacted the Virginia Flood Damage Reduction Act of 1989. This legislation was the result of several disastrous floods or coastal storms that hit the state between 1969 and 1985. To improve Virginia's flood protection programs and place related programs in one agency, responsibility for coordination of all state floodplain programs was transferred in 1987 from the Water Control Board to the Department of Conservation and Recreation (DCR). DCR was named manager of the state's floodplain program and designated coordinating agency of the National Flood Insurance Program under the act, §10.1-602, and a governor's memorandum released in July 1997. Floodplain Management Program staff work with localities to establish and enforce floodplain management regulations. Localities use the program's state model ordinances, in which minimum standards for local regulations are set, to write their own. Local governments can set more restrictive standards to ensure higher levels of protection for residents in flood hazard areas. Also, the state has used the Virginia Uniform Statewide Building Code to set construction standards for structures built in Federal Emergency Management Agency designated flood hazard areas. Floodplain zoning regulates development within floodplains. The program's main goal is to protect people and their property from unwise floodplain development practices. It also protects society from costs associated with the development of risk-prone floodplains. The provisions for development within the regulated floodplain have typically been addressed by stand-alone ordinances adopted for voluntary participation in the National Flood

Insurance Program. Revised floodplain ordinance provisions were recently incorporated into comprehensive zoning ordinances when localities adopt, revise or re-codify zoning ordinances.

The state is currently mid-way through a comprehensive map modernization program funded by FEMA. DCR has developed a support system to update flood maps and a limited number of flood studies in the Commonwealth through implementation of its Map Modernization Business Plan which was revised in 2006. The status of local map digitization and the revised Flood Insurance Rate Map adoption process can be tracked at the map modernization website: www.vamapmad.org.

2.8.2 Emergency Response and Recovery

Response to natural hazard events is coordinated through local emergency management agencies. Most local agencies are responsible for preparing for and training to respond to disasters, whether natural or technological in origin. Recovery, especially from major events, may involve other local agencies, such as housing, water/wastewater, and parks and recreation. Local agencies prepare local emergency management plans that direct their response and recovery operations.

2.9 State Agencies

Key word searches of the *Code of Virginia* were conducted at <http://leg1.state.va.us/000/src.htm>. The purpose of the search was to identify statutes that may influence how hazards are currently addressed, and how existing programs and authorities affect hazard mitigation. Key word searches are not intended to be exhaustive, but to suggest areas for further examination. Key words were:

- | | |
|------------------|---------------------------|
| ■ infrastructure | ■ building code |
| ■ landslide | ■ coastal erosion |
| ■ land use | ■ dam failure; dam safety |
| ■ public land | ■ disaster |
| ■ seismic | ■ earthquake |
| ■ slope failure | ■ emergency management |
| ■ steep slope | ■ flood; floodplain |
| ■ subsidence | ■ forest fire |
| ■ tornado | ■ growth management |
| ■ utilities | ■ hail |
| ■ wind | ■ hazard |
| ■ zoning | ■ hurricane |

In order to summarize how various state agencies address hazards in their on-going activities, a set of questions was distributed to the Committee members. Each member was interviewed about agency authorities, responsibilities, programs and functions. Table 2-1 summarizes the methods that agencies use to influence new development, public buildings and infrastructure, existing development, and public information. Brief agency profiles (see Appendix D) were developed to summarize:

- Agency and contact information;
- Description and mission; and
- Existing programs and mitigation roles.



Table 2.1 Mitigation Planning Function by Agency.

MITIGATION FUNCTIONS	Agriculture & Consumer Services	Business Assistance	Chesapeake Bay Local Assistance	Commission on Local Government	Conservation & Recreation	Economic Development Partnership	Emergency Management	Environmental Quality	Forestry	Game & Inland Fish	General Services	Geographic Information Network	Health	Historic Resources	Housing & Community Development	Housing Development Authority	Labor & Industry	Marine Resources Commission	Mines Minerals & Energy	Planning & Budget	Rail & Public Transportation	Transportation	Treasury, Risk Management	VA Resources Authority	VA Municipal League/Assoc. of Counties	Local Jurisdictions	Planning District Commissions
INFLUENCE NEW PRIVATE DEVELOPMENT																											
Planning (e.g., land use, comprehensive, etc.)			◆						◆									◆	◆			◆				◆	◆
Regulations (e.g., permits, codes, standards)								◆					◆	◆	◆			◆			◆					◆	
Funding (e.g., for public infrastructure, housing)								◆					◆	◆	◆									◆			◆
INFLUENCE PUBLIC BUILDINGS, PUBLIC INFRASTRUCTURE																											
Standards for planning & construction of buildings											◆				◆			◆									◆
Loss control/Insurance on buildings		◆																					◆		◆		
Standards for planning & construction of roads					◆													◆				◆					
Standards for planning & construction of infrastructure					◆			◆					◆	◆				◆			◆						◆
INFLUENCE EXISTING DEVELOPMENT, REDEVELOPMENT, POST-DISASTER RECOVERY																											
Regulations (e.g., codes for existing building)								◆			◆		◆	◆	◆		◆										◆
Planning (e.g., planning & project grants)					◆		◆		◆		◆		◆		◆												◆
Funding/incentives (e.g., tax, subsidies, grants, loans)		◆			◆		◆		◆				◆		◆									◆			
Technical assistance	◆	◆			◆	◆	◆	◆	◆		◆	◆	◆	◆	◆		◆					◆					◆
PUBLIC INFORMATION																											
Information (e.g., outreach, awareness)	◆	◆	◆	◆	◆	◆	◆	◆	◆				◆	◆	◆	◆		◆	◆	◆			◆		◆	◆	◆

The section of each agency profile that summarizes existing programs and mitigation roles contains information regarding how hazards are addressed. For the most part, agency activities do not expressly address hazards; however, some programs address hazards tangentially.

VDEM emphasized throughout this planning process that agencies should provide information regarding proposed and ongoing projects (discussed in Chapter 4 and listed in Appendix H) that come from existing programs and mitigation efforts for those agencies. The agencies and programs that most directly address hazards and mitigation include:

- **Virginia Department of Emergency Management (VDEM).** VDEM's primary mission is to protect the lives and property of Virginia's citizens from emergencies and disasters by coordinating state emergency preparedness, response, recovery and mitigation programs. The responsibility of VDEM is to ensure a comprehensive, efficient and effective response to emergencies and disasters throughout Virginia, including provision of assistance in the absence of events for which federal aid is made available. VDEM is charged with supporting mitigation planning and administers Hazard Mitigation Grant Programs that provides grants to eligible entities to implement cost effective mitigation projects in post-disaster periods. VDEM and the Department of Conservation & Recreation coordinate the

administration of FEMA's NFIP-funded Flood Mitigation Assistance Program. VDEM also leads the state and federal Public Assistance Programs, which provide disaster assistance to state agencies, local jurisdictions, and certain private nonprofit entities to repair and restore damaged facilities. Damaged facilities must be repaired in a manner that is compliant with existing codes and standards. VDEM manages the National Weather Service's Integrated Flood Observing and Warning System (IFLOWS) in several western and southwestern counties. IFLOWS improves local flash flood warnings through a linked wide area monitoring and communications network. With other state agencies and local jurisdictions, VDEM coordinates hurricane evacuations, relying in part on information developed as part of the Hurricane Evacuation Study prepared by the U.S. Army Corps of Engineers with support from FEMA, VDEM, and the National Weather Service (VDEM, 1992).

It must be noted and emphasized, the context of the planning effort, particularly with the 2004 Standard Plan being developed within the context of mitigation of state agency assets, was within maintenance of eligibility of essential disaster recovery and hazard mitigation grant programs. This eligibility included eligibility for the following programs as authorized in 44CFR:

- Public Assistance Program Grants
- Hazard Mitigation Grant Program
- Pre-Disaster Mitigation Program

At the time, very few flood mitigation plans had been developed in the Commonwealth. As part of the local planning process, local 322 plans were developed to meet, to the extent practicable, FMA plan standards so that FMA eligibility would be expanded.

Use of the HMGP, PDM and FMA grant programs was explored as funding sources for structural mitigation and data development objectives and strategies. FMA funding is very limited and is not really targeted for use in the Commonwealth to mitigation Commonwealth structures. Mitigation most directly interfaces the public assistance program through use of the section 406 public assistance mitigation program immediately post-disaster. As the structural mitigation measures were not directed specifically at post-disaster actions but were more proactive in examination of holistic, long-term mitigation strategies, public assistance was not directly integrated into the plan.

Human Caused Hazards Planning AT VDEM: The Commonwealth of Virginia has many tools in building a mitigation plan to address human caused disasters. Existing informational databases provide an overview of what hazards may affect the commonwealth. Currently in development is a Geospatial Information System (GIS) database that will incorporate many layers of that will provide a real time catalog of hazardous materials at a particular site. This system will give first responders and emergency planners data on materials that are stored including their quantities, whether they are processed or manufactured, facility emergency plans and contact details, and types of vulnerable infrastructure that are located within a pre-determined area of the facility at risk.

Another informational tool has been the funding of commodity flow studies throughout the most heavily traveled areas of the state. These flow studies, which were funded under the Hazardous Material Emergency Preparedness (HMEP) grant funding program, provide a snapshot of types of hazardous materials that are moved through transportation corridors; their methods of transportation, the associated transportation patterns and whether transport is being done in compliance with regulations. The commodities flow studies provide a means to identify the most common hazardous materials which are moving through an area and allow a regional hazmat team to acquire additional training in how to handle



these particular risks. The studies also allow localities to adjust their emergency plans to deal with such products. Identifying and understanding transportation related risks, coupled with the fixed facility data available, provides a more comprehensive assessment of the Hazmat risk within the community, and will be used to support the development of regional profiles. These profiles will assist in identifying regional needs and support development of initiatives to enhance the overall level of preparedness.

Local sample Hazmat Terrorism Consequence Management Plans have been developed to assist localities in the preparation of their plans. The state has held a series of regional forums for Local Emergency Planning Committees (LEPCS). These forums address a wide variety of topics. The Virginia Hazardous Materials Terrorism Consequence Management Plan which is currently being updated includes sections on prevention, infrastructure, emergency response to terrorist events (including Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE)). The Strategic National Stockpile is another resource.

The Virginia Department of Transportation oversees the Buffer Zone Protection Program and other programs dealing with infrastructure. These programs are coordinated with and engage the private sector to the extent feasible.

- **Department of Conservation & Recreation (DCR).** DCR enhances natural and recreational resources through land management planning, funding, education and regulations. DCR is the State Coordinating Office for National Flood Insurance Programs, administers the dam safety program, and participates in interagency initiatives concerning coastal erosion. A number of DCR's programs have the potential to support certain flood mitigation projects. *The Flood Prevention and Protection Assistance Fund* helps local jurisdictions address problem areas. Some easement and other programs may support floodplain acquisition projects, including Scenic Rivers Program, funding from the Virginia Outdoors Fund, Conservation Reserve & Enhancement Program, and Best Management Practices implemented with Water Quality Improvement grants.

Prior to initiation of the 2004 Standard Plan planning process, DCR initiated a revision of its floodplain management program plan. This effort was funded by VDEM and the Flood prevention and Protections Assistance Fund, and was intended to inform the flood hazard section of the VDEM standard hazard mitigation plan. Unfortunately, workloads from repeated disaster declarations, staffing vacancies and the new Map Modernization Program prevented development of the Floodplain Management Plan in time for incorporation into the 2004 Standard Plan or this revised plan. During the next revision process, VDEM and DCR will partner to assure that the concepts of both plans are fully merged to ensure full optimization of floodplain management concepts within the context of reducing flood hazards. The DCR Floodplain Management Plan is available digitally as Enhanced Appendix 13.

The Map Modernization Program is coordinated by the Virginia Department of Conservation and Recreation. It is described in several sections of this plan. Implementation of the map modernization strategic plan will inform all future HIRA revisions as more refined flood hazard mapping becomes available.

- **Department of Housing & Community Development (DHCD).** DHCD collaborates with communities to assist them in fully developing their economic potential, and create a healthy, safe and affordable living environment. Three key aspects of DHCD's broad responsibilities merit particular attention: Several funding programs can support local mitigation measures, including the Community Development Block Grant program and other federally funded programs.



Following Hurricane Isabel, DHCD grant staff coordinated with VDEM hazard mitigation and human service managers to target funds to communities hardest hit by Isabel. This effort resulted in more than \$5M in CDGB monies supporting elevations of flood prone properties, increasing the capacity of the Isabel HMGP program (\$19M) by 25%.

After catastrophic disasters of regional proportions, DHCD coordinates local Long-Term Disaster Recovery Task Force. These task forces are critical to coordination of various economic assistance and redevelopment programs, volunteer efforts, donations and redevelopment. Strong local recovery task forces have support disaster recovery in southwest Virginia (flooding and severe weather), Franklin Virginia (Hurricane Floyd) and Poquoson (Hurricane Isabel).

- **Department of Forestry (DOF).** One of Virginia's strongest programs in the nation is responsible for 15 million acres of forestland, providing protection and management for forest fire, insects, and disease. DOF is directly responsible for suppression of forest fires and supports response to natural disasters. Full-time and part-time wildland firefighters are trained and qualified by DOF in fire control tactics and the Incident Command System. An emergency interagency response center is located in Charlottesville; two mobile command centers are available for rapid deployment. Funded by National Fire Plan grants, DOF has initiated statewide wildland fire risk assessments that are maintained in a geographic information database system.
- **Virginia Resources Authority (VRA).** The VRA facilitates loans to support local infrastructure for projects concerning environmental quality, public health, transportation and economic development. VRA serves as a banking institution and has no funds of its own. Projects may involve expansion or construction of new facilities, which may be prompted by growth, or replacement/reconstruction of existing facilities. Relocation of facilities may be undertaken, as well as retrofitting or upgrading existing facilities to meet current standards.
- **Department of General Services (DGS).** DGS oversees the design and construction of state-owned buildings, applying the International 2000 Building Code provisions related to wind, seismic, snow, and flood loads. The *Governor's Executive Memorandum 2-97* designates DGS as the agency responsible for ensuring state construction proposed in mapped flood hazard areas complies with the National Flood Insurance Program (NFIP). All proposals are processed as variances, and must be reviewed by DCR.
- **Virginia Department of Transportation (VDOT).** VDOT is responsible for building, maintaining and operating state's roads, bridges and tunnels, including repairs and replacements required after natural disasters. In accordance with requirements of the Federal Highway Administration, VDOT routinely factors flood hazards into the planning and design of transportation infrastructure, and seismic provisions are required in the southwestern portion of the state. Based on an evaluation of major bridges, seismic retrofit measures are not required throughout the rest of the state.
- **Risk Management Division, Department of Treasury (RMD).** RMD maintains a blanket insurance policy, which covers all state buildings. Each agency pays premiums based on their buildings and loss history. Specific coverage is provided for flood damage, which provides up to \$500 million, with a deductible of \$1 million for any single event (regardless of the number of impacted buildings). Coverage is provided for losses associated with seismic events.
- **Department of Mines, Minerals & Energy (DMME).** DMME operates six divisions, which focus on the production of more than 30 different mineral resources such as coal, gas and oil, and non-petroleum minerals like rock and gravel. A primary goal of DMME is that these mining operations have no off-site effects such



as increased flood hazards and slope failure potential. The State Geologist's office provides mapping and digital data to local jurisdictions to be included in local plans. Maps of steep slope areas, including areas where landslides have occurred, are available for some areas.

- **Department of Environmental Quality (DEQ).** DEQ is the lead agency for the Virginia Drought Monitoring Task Force, DEQ then compiles Drought Status Reports using information from several state and federal agencies. The reports, which are distributed by VDEM, contain sections relating to current climatologically conditions and situation reports regarding water supplies, water quality, forest fire risks and agriculture and crop reports. DEQ also has major responsibility for the environmental consequences of accidents and disasters. The agency plays a major role in hazardous materials containment, testing and abatement and provides oversight to the section 401/404 joint permitting process that oversees any activity with potential impacts to rivers, streams or wetlands. The Human Caused Terrorism section on page 2-6 identifies the plans and other tools available to deal with hazard spills.
- **Virginia Coastal Program.** The Department of Environmental Quality leads the networked Virginia Coastal Program and helps with development and implementation of coordinated policies. DCR manages the Shoreline Erosion Advisory Service (SEAS), which advises shoreline property owners and coastal resources managers about shoreline erosion control and stabilization methods. The Virginia Marine Resources Commission regulates sand dune modifications; many local jurisdictions have adopted ordinances for sand dune protection and issue permits with the Marine Resources Commission in an oversight role. The Virginia Institute of Marine Science provides technical and research support. The Board on Conservation and Development of Public Beaches provides for the conservation of tidal public beaches by allocating state-funded grants to local jurisdictions to conserve, protect, improve, maintain and develop public beaches and tidal shorelines.

2.9.1 Related State Plans and Documents

There are many state plans and documents related to mitigation planning in Virginia. Existing state plans and documents that most affect mitigation were reviewed in detail, and are summarized below.

Commonwealth of Virginia Emergency Operations Plan; Support Annex 3 Mitigation (2001) (Virginia Department of Emergency Management, 2001). This plan, developed primarily to meet federal regulatory requirements, was prepared using a traditional planning process. A list of the "task assignments" was included in Section 5.3. A number of opportunities were identified and incorporated into the 2004 *Standard Virginia Hazard Mitigation Plan*. This plan replaced the 1993 plan.

High Priority Mitigation Actions – 2001

1. Make Available to Local Jurisdictions Information about Programs and Funding Mechanisms that May Support Mitigation Projects.
2. Foster Local Pre-Disaster Mitigation Planning.
3. Identify Existing and Potential Mitigation Projects; Seek Funding; Support Post-Disaster Repairs.
4. Increase Public Education and Awareness of Hazards and Mitigation.



High Priority Mitigation Actions – 2001

5. Mitigate Damage and Losses at Local Public Buildings, School Buildings, and Water/Wastewater Treatment Facilities and Strengthen Ability to Continue Service.
6. Examine Measures to Help Reduce Power Outages During Disasters.
7. Protect State Investments in High Risk Areas.

Floodplain Management Plan for the Commonwealth of Virginia (2005) (Virginia Department of Conservation and Recreation). This document contains valuable information on flood hazards and risks, and defines the state's role in floodplain management. It contains a modest action agenda, which is reflective of concerns about reductions in program staff and resources in the early 1990s. A summary of the status of the action agenda set forth in the Plan is included. A review of the Plan, on file with VDEM and DCR, recommends that the *Floodplain Management Plan* form the technical basis for the flood-related actions set forth in this Hazard Mitigation Plan. However, delay of revision of the *State Floodplain Management Plan* precluded its use in developing the hazard and risk analysis for this plan. The State Floodplain Management Coordinator began revision of the plan during spring, 2004. It was completed in March, 2005 and serves as an annex to the state Hazard Mitigation Plan.

Executive Memorandum 2-97, Floodplain Management for State Agencies (1997).

Developed in the early 1990s and adopted after Hurricane Fran in 1996, this document is a clear statement of the Governor's intent that all state agencies have some responsibility in managing flood hazards and reducing their impacts through a series of different avoidance, promotion, and coordination activities. A summary review is on file with VDEM and DCR. As set forth in the Executive Memorandum, the Governor addresses important aspects of state performance:

- DCR is charged as the State Coordinating Office of the NFIP and the technical advisor on the viability of proposed flood mitigation projects;
- All State agencies engaged in construction or land disturbing activities are to comply with locally adopted floodplain management ordinances;
- New state buildings in flood hazard areas must be authorized by a variance obtained from the Director of Department of General Services' Division of Engineering and Buildings in consultation with DCR; and
- The State Corporation Commission determines the adequacy of the Commonwealth's insurance with respect to potential flood damage.

All state agencies follow the directives listed above routinely. Therefore, the Executive Memorandum is considered state policy that must be followed by all state agencies. It represents ongoing mitigation efforts, not new initiatives, so is not further addressed by this plan.

Mitigation Strategies: Prepared by the Commonwealth and FEMA immediately following establishment of a Disaster Field Office to respond to each presidential declared disaster, the Mitigation Strategy focuses mitigation priorities specific to recovery from that disaster. In conjunction with the state's mitigation goals and vision statement, the Mitigation Strategy priorities are determined to support recovery operations for the specific disaster event. These priorities can include education, support of local officials in administration of floodplain ordinance requirements, targeted technical training and



development of specific mitigation messages for affected residents, businesses and local governments. The Strategy outlines priorities for implementing Hazard Mitigation Grant Program funding that is determined as 7½% of eligible program expenditures for the disaster. Immediate recovery priorities are outlined to guide eligible HMGP applicants; these priorities are used to rank and select HMGP project applications.

2.9.2 Federal Agencies & Programs

The following list of federal programs is intended to focus on those that are most applicable to the hazards that have occurred recently in Virginia. After each declared disaster, federal resources that may support recovery are identified. Some federal programs can be accessed in an ongoing capacity to support local initiatives. More detailed information on these programs and others can be found in *Federal Programs Offering Flood Recovery and Floodplain Management Alternatives* (Office of Management and Budget, 1998) and *Economic Impact Assessment of Hurricane Floyd for Virginia* (EDA and FEMA, 2000). As with local and state programs, these programs were in the background of the development of this plan, but were not specifically integrated into the final *Standard Virginia Hazard Mitigation Plan – Emergency Operations Plan, Support Annex 3* because the plan primarily addresses state facilities determined to be at risk following analysis of vulnerability of state facilities to natural hazards. As implementation of the plan ensues, every opportunity to integrate existing federal programs into hazard mitigation will be explored.

Federal Emergency Management Agency (FEMA). As the nation's emergency management agency, FEMA's programs focus mainly on supporting state and local initiatives that will reduce the impacts of disasters. The programs provide technical assistance, regulatory standards and financial assistance. Additional information is available online at www.fema.gov. Some programs are activated only after a disaster is declared; others are ongoing:

- **Hazard Mitigation Grant Program (HMGP).** The HMGP has become the most widely known grant program that provides grant funding to address at-risk development. While the program's primary emphasis has been to remove homes through acquisition or to elevate them above predicted flood levels, HMGP funds have also been used on a wide variety of projects to increase resistance to nearly all-natural hazards. Since 1989, more than \$1.5 billion has been invested nationwide in mitigation through HMGP. Funds for this program become available only after a disaster declaration; recipients must meet certain eligibility criteria; projects must also be feasible and cost effective. Many of the projects identified within the Structural Mitigation goal element of the plan could be funded through HMGP.
- **Response & Recovery – Public Assistance (PA).** Immediately following the declaration of a major disaster, FEMA and state implement procedures to assess damage, estimate the cost of restoration, and allocate funds for recovery. Public Assistance program focuses on restoration of certain non-profit and public buildings, public utility and transportation infrastructure that covers a portion of the costs to respond and recover from the event. Under certain circumstances, mitigation measures can be factored into recovery of public buildings and facilities in order to minimize the potential for future losses from comparable events through use of the 406 program. Use of this program to strengthen structures impacted by disasters as part of the repair and recovery process will be pursued as disasters occur that provide federal Public Assistance funding for eligible structures. VDEM is responsible for coordinating response and recovery efforts with FEMA and local jurisdictions. Additional information is available on FEMA's website at www.fema.gov/r-n-r/pa/index.htm.



- **Response & Recovery – Individual Assistance (IA).** Also implemented jointly immediately following a major disaster declaration for events which impacts citizens, the IA program provides funds for temporary housing, basic housing repairs, and replacement of essential household items. Contact VDEM for additional information and check FEMA's website at <http://www.fema.gov/R-N-R/iNassist.htm>.
- **Pre-Disaster Mitigation (PDM).** In the late 1990s, FEMA's *Project Impact* initiative was created to promote the concept of disaster resistant communities through public-private partnerships. The program was eliminated following the Stafford Act revision in 2000. This law created the requirement to develop all-hazard mitigation plans. The Pre-disaster Mitigation Program was created to fund common-sense, damage-reduction approaches, based on planning developed with three principles: (1) preventive actions must be decided at the local level; (2) private sector participation is vital; and (3) long-term efforts and investments in prevention measures are essential. Projects identified in the Structural Mitigation goal section of the plan will pursue PDM funding as FEMA releases Requests for Proposals for this program. Local governments are currently preparing local hazard mitigation plans that will allow them to compete for Pre-Disaster Mitigation funds once their local plan is approved.
- **Flood Mitigation Assistance Program (FMAP).** This grant program is intentionally focused on those properties that, if mitigated, will benefit to the National Flood Insurance Program and its policyholders. For the most part, the projects acquire, elevate or relocate residential buildings that have a history of repetitive claims against the NFIP. All projects, including measures other than acquisition and elevation, must be cost effective and not have adverse environmental impacts. Localities wishing to apply for these funds must have an approved Flood Mitigation Assistance Plan or All-Hazards Mitigation Plan that meets all of the criteria of an FMA plan as provided in CFR §78.5. During 2005, FEMA offered to review any local 322 plan for FMA compliance. Thus, a large percentage of the local plans in Virginia meet the criteria for both. Other localities, as they begin the process of plan implementation and maintenance are considering revising their 322 plans so that they are FMA compliant. VDEM will continue to promote FMA plan approval. Additional information is available from FEMA's website or the Department of Emergency Management.
- **Repetitive Flood Claims Program (RFC).** This program, first offered in by FEMA during FY 2006 and used to acquire and demolish three flood-prone residences in the City of Chesapeake with FY 2007 funds, targets repetitive flood properties through an annual nationally competitive grant program. VDEM contacts potential applicants prior to each funding cycle to support application development. Properties must be on the repetitive loss list and pass benefit-cost analysis to be eligible for funding. Up to 100% federal funding is available.
- **Severe Repetitive Loss (SRL).** The SRL program, approved in 2008 as a pilot, provides funding to reduce or eliminate the losses from high-risk structures through mitigation projects. The pilot program is targeted to NFIP-insured residential severe repetitive loss properties that have accumulated flood damages of four or more claims whereby each claim exceeds \$5,000; two separate claims with cumulative amounts exceeding the market value of the structure. At least two claims in either scenario must have occurred within a ten-year period.
- **National Flood Insurance Program (NFIP).** The NFIP offers flood insurance to residents who reside in local jurisdictions that adopt and enforce certain provisions that will help to minimize future flood losses. The measures apply to all activities proposed within special flood hazard areas that are designated on maps provided



by FEMA. All development must be designed and constructed to withstand damage (from water and wind-related hazards) and must not create any adverse impacts on other properties. The single most effective measure (other than building outside of flood-prone areas) is to elevate buildings above the base flood elevation. Additional information is available through DCR or on FEMA's website at www.fema.gov/nfip.

- **Map Modernization Program.** Flood Map Modernization (Map Mod) is FEMA's approach to updating the Nation's flood hazard maps. Over the years, many of the government's flood insurance maps have become obsolete due to urban growth, changes to river flows and coastlines, and even flood mitigation efforts like drainage systems and levees. The Multi-Year Flood Hazard Identification Plan (MHIP) details FEMA's 5-year plan for providing updated digital flood hazard data and maps for areas with flood risk. Map Mod will transform flood maps into a more reliable, easier-to-use, and readily available product. To accomplish this task, FEMA has developed the Mapping Information Platform (MIP) for all floodplain mapping professionals. Updated, digital flood maps will become the platform for identifying multiple hazards-not just floods. In the United States, flooding claims approximately 200 human lives each year and costs the nation about \$3 billion annually in damages (source: VA DCR). By accurately identifying flood prone areas, floodplain mapping reduces property damage along with human casualties and fatalities.
- **Cooperating Technical Partners (CTP).** With over 20,000 communities in the National Flood Insurance Program (NFIP), maintaining current maps is a daunting task. The current map modernization effort is a collaborative process which spans all levels of government as well as a multitude of other organizations. This collaborative process results in partnerships among state, regional, and local stakeholders. The Commonwealth participates in the Map Modernization initiative as a CTP. DCR completed its Map Modernization Program Business Plan in 2004 and has initiated implementation of this plan. Several local jurisdictions participated in this effort as well. Additional Information is available through DCR.
- **Community Rating System (CRS).** The CRS is an incentive program that rewards communities that exceed NFIP regulations in ways that reduce damage and improve safety. The incentive is a reduction in the cost of flood insurance premiums. Communities must apply, annually certify their programs, and undergo periodic audits. In Virginia, 16 communities participate in providing flood insurance premium discounts of 5% to 10% to their residents. Additional details are available from DCR.
- **National Earthquake Program (NEP).** The National Earthquake Program, coordinated by FEMA, has four basic goals directly related to the mitigation of seismic related hazards: **(1)** promote understanding of earthquakes and their effects; **(2)** work to better identify earthquake risk; **(3)** improve earthquake-resistant design and construction techniques; and **(4)** encourage the use of earthquake-safe policies and planning practices.
- **National Hurricane Program (MHP).** FEMA funding is provided to hurricane-prone states to establish, enhance and maintain basic levels of preparedness and mitigation capabilities, to promote effective mitigation measures, to conduct hazard identification and evacuation studies, to conduct post-storm analyses of mitigation measures, to conduct training, and to promote public awareness and education of hurricane safety and preparedness. Commonwealth's participation is coordinated with a hurricane planner within VDEM.
- **National Dam Safety Program (NDSP).** FEMA coordinates the NDSP among federal agencies and state partners. In addition to maintaining a dam inventory, encouraging research, and promoting the implementation of state programs, the program also provides training and funds. Virginia's participation is coordinated with the Division of Dam Safety and Floodplain Management at DCR with constant and continual integration with VDEM regarding community eligibility status in the



NFIP, Training, Repetitive Loss Data, Map Modernization and Technical Assistance on Flood proofing, Floodplain Management and Coastal Flooding issues.

- **Hazards U.S. (HAZUS).** HAZUS is a computer program that utilizes a set of Geographic Information System (GIS)-based mapping tools that help to estimate losses associated with earthquakes, floods, and wind. Developed in partnership with the National Institutes for Building Safety, HAZUS can be used to model event scenarios useful to compare risks between regions as well as evaluate effects of certain mitigation measures. Each state receives a copy of the software and certain baseline data. Recent improvements were made in the quality of data that characterize building types and locations, significantly improving analysis results.

U.S. Department of Housing and Urban Development (HUD). HUD programs are administered through the Virginia Department of Housing and Community Development and offer several programs to support local efforts to address hazards and implement mitigation measures. The following are some of the more active programs used to minimize flood hazards:

- **Community Development Block Grant (CDBG).** CDBG funds are available to support activities which meet one of the three National Objectives criteria established by HUD:
 - benefits low and moderate income persons;
 - prevents or eliminates slum and blight conditions; or
 - meets other community development needs having a particularly urgency due to existing conditions posing a serious and immediate threat to the health and welfare of the community, and where other financial resources are not available.

CDBG funds are routinely used in disaster-impacted areas for repair, elevation and acquisition/demolition of damaged structures, particularly residents that qualify for the program. Following Hurricane Isabel, a special CDBG congressional funding allotment was targeted to communities where HGMP funds could not fully address mitigation needs. This is the most recent example of coordination between CDBG and FEMA-VDEM funding to assist disaster recovery.

- **HOME Housing Partnerships Program.** HOME program funds give communities the flexibility to undertake a broad range of affordable housing activities, including the acquisition of property, construction of new housing for rent or homeownership, rehabilitation of rental or owner-occupied housing, improvement of sites or demolition of dilapidated homes, relocation costs for households displaced by HOME program activities, financial assistance to low-income homeowners and new homebuyers, and tenant-based rental assistance for low-income renters. The Virginia Department of Housing and Community Development coordinates the HOME program.

U.S. Department of Commerce, Economic Development Administration (EDA). EDA supports economic recovery strategies, in part by providing cost-shared funds for planning and technical assistance, emergency infrastructure grants, construction grants and a Revolving Loan Fund to assist communities and quasi-public entities such as local development corporations and public or private non-profit organizations. EDA funds have been used to retrofit or relocate public water supply or wastewater treatment facilities. After disasters, some communities use EDA long-term recovery funding to help businesses move to safer locations.



U.S. Army Corps of Engineers. In addition to managing several large dams, levee protection projects and beach nourishment projects, the Corps supports state and local floodplain management and mitigation through the following programs:

- **Floodplain Management Services (FPMS).** Under FPMS, the Corps provides a full range of technical services and planning guidance support for state and local efforts. The same services are available to non-governmental entities, including individuals, on a reimbursable basis. The Corps can provide information on flooding, estimates of potential flood losses, and guidance for managing floods hazard areas. Under FPMS, the Corps investigates methods to prevent and reduce flood damage, including retrofit and other flood proofing methods
- **Planning Assistance to States (Section 22).** Assistance and planning guidance to state, regional and local governments is provided on a cost-shared basis and can address a variety of water resources issues, including floodplain management, flood damage reduction, dam safety, water supply, water quality, coastal zone management, wetlands management and environmental conservation and preservation.
- **Hurricane Evacuation Studies (HES).** Coordinated with FEMA and the National Weather Service (NWS), the Corps leads development of regional evacuation studies based on predicted storm conditions developed by the NWS. Virginia's involvement is coordinated by VDEM and resulted in the *Virginia Hurricane Evacuation Study* (VDEM, 1992). Updated evacuation studies for Virginia's Tidewater region and the rest of the Chesapeake Bay are expected in the next few years.

The Corps is currently working on several projects within the Commonwealth that are critical to hazard reduction and support the principle goals and objectives of the Standard Plan. These include the Roanoke River Valley Flood Reduction Project, Map Modernization projects and support of the Hurricane Evacuation Program through modeling studies.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS).

The NRCS is dedicated to the conservation of soil and water and related resources. Technical assistance is provided to individuals, groups, organizations and government agencies through conservation districts. Virginia's Departments of Agriculture and Consumer Services and Department of Conservation and Recreation are the state's contacts for NRCS programs:

- Under authority in Public Law 566, numerous flood reduction projects were constructed to address problems in small watersheds. NRCS supports river basin and watershed planning initiatives undertaken by local jurisdictions.
- The Emergency Watershed Protection Program can provide technical and financial assistance to communities to repair and restore clogged and damaged waterways to pre-disaster conditions.
- The Emergency Conservation Program, coordinated with the USDA Farm Services Agency, provides technical assistance to the agricultural community after disasters.
- Wetland Reserve Program provides technical and financial support to help landowners implement wetland restoration, conservation and wildlife practices.

NRCS most frequently works with disaster recovery and mitigation in a post-disaster setting in the Commonwealth addressing stream and river flooding issues through the EWP program. This has been used extensively in western mountain flood events in the 1990's and the early part of this decade. NRCS recently assisted with flood evaluation in urban watersheds following the severe weather disaster of June, 2006 (DR-1655-VA).



U.S. Department of Agriculture, Other Programs. USDA has a number of loan and grant programs that may support mitigation initiatives and post-disaster recovery. Additional information may be obtained from the U.S. Department of Agriculture or on-line at www.usda.gov:

- Rural Business-Cooperative Development Service Business and Industrial Loans help create jobs and stimulate rural economies by backing rural businesses.
- Rural Housing Service Community Facilities Loans and Grants can be used to construct, enlarge or improve community services for health care, public safety, and public services.
- Water and Waste Grants and Loans are used to develop, replace, or repair water and waste disposal (including storm drainage) systems in rural areas and small towns.
- Farm Service Agency Emergency Conservation Program assistance can be used to rehabilitate certain farmland damaged by floods or other disasters.
- Farm Service Agency Tree Assistance provides cost-shared payments to orchardists, maple sugar producers, greenhouse operators and vineyard growers who incur losses due to damaging weather.
- Federal Multi-Peril Crop Insurance policies insure against losses due to natural causes such as drought, excessive moisture, hail, wind, frost, insects and disease.
- Non-insured Crop Disaster Assistance Program helps growers of crops for which crop insurance is not available.
- Farm Service Agency Flood Risk Reduction allows farmers to voluntarily enter into contracts to receive payments on lands with high flood potential in return for foregoing certain USDA program benefits.
- Conservation Reserve Program helps landowners conserve and improve soil, water and wildlife resources by converting environmentally sensitive acreage to long-term approved cover.
- Emergency Conserve Program provides funding to address new conservation problems created by disaster that, if not treated, would impair or endanger the land. Funds can be used to rehabilitate farmland damaged by wind erosion, floods, hurricanes, or other natural disasters and to carry out water conservation measures during drought.

U.S. Small Business Administration (SBA). The SBA has the authority to declare disaster areas based on the number of homes and businesses that are affected, even if the event does not warrant a declaration by the President. SBA provides low-interest loans, and can authorize loan amounts up to 20% above the costs of restoration if the applicant agrees to implement mitigation measures. Individuals and businesses can use SBA funds to pay for the non-federal share of HMGP and FMA projects to elevate-in-place, relocate, or flood-proof buildings in flood hazard areas. The Virginia Department of Business Assistance is one source of information, and the SBA is on-line at www.sba.gov:

- **SBA Business Physical Damage Loan Program.** Available to help businesses and nonprofit organizations repair or replace uninsured damaged property such as real estate, machinery and equipment, inventory, and supplies. SBA requires borrowers to obtain and maintain appropriate insurance, especially if located in a flood hazard area.
- **SBA Economic Injury Disaster Loan.** These loans of “last resort” provide working capital to small businesses and small agricultural cooperatives to help them through the recovery period.



- **SBA Disaster Assistance Program Loans.** These loans are available to eligible homeowners through the Robert T. Stafford Act as part of the Individual Assistance Program. The loans can include mitigation measures such as drainage improvement, flood proofing and hurricane shutter installation. This program provides an opportunity for citizens within declared jurisdictions to work independently of a traditional grant program to assume responsibility for mitigation of their disaster-prone property. During 2006, the Commonwealth sought and received SBA assistance for two federally declared Public Assistance Disasters so that some assistance was available to affected residents.

